Russian Strength Training Secrets For Every American

By Pavel Tsatsouline, *Master of Sports*

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Published in the United States by:
Dragon Door Publications, Inc
P.O. Box 4381, St. Paul, MN 55104
Tel: (651) 645-0517 • Fax: (651) 644-5676
Credit card orders: 1-800-899-5111
Email: dragondoor@aol.com • Website: www.dragondoor.com

ISBN: 0-938045-19-9

Book and cover design, Illustrations and photo effects by Derek Brigham
Website http//www.dbrigham.com • Tel/Fax: (612) 827-3431 • Email: dbrigham@visi.com

Digital photography by Robert Pearl Photography • Tel: (612) 617-7724

Manufactured in the United States
First Edition: January 2000

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FOREWORD

Russian roads are everything you have heard about them and more. Locals were not surprised when an American cyclist on a mission to cross Siberia got stuck in the mid - dle of Russia's twelve time zones with a busted wheel rim. Because Russian bicycle wheels are bigger than American ones, the dude was going to be parked in the middle of nowhere for weeks waiting for a replacement from California. "Don't sweat!" said a local handy - man puffing on an evil Kazbek fil - terless cigarette. He pulled the spokes out of a Russian rim, cut it and removed a segment. Then he reshaped and welded it. American spokes went back in, and the foreign adventurer was back on the road!

Russians have always made do with simple solutions without compromis - ing the results. NASA aerospace types say that while America sends men to the moon in a Cadillac, Russia manages to launch them into space in a tin can. Enter the tin can approach to designing a world class body—in your basement with $150 worth of equipment. After all, US gyms are stuffed with hi-tech gear, yet it is the Russians with their metal junkyard training facilities who have dominated the Olympics for decades.

Americans are known for thinking outside the box and in the days when there were no supplements and AbRollers to pedal, they came up with effec - tive strength training methods. Follow the advice of Earle Liederman from his Secrets of Strength published in 1925 and quoted frequently in my book, and you will get results superior to anything you can expect from most of the weight training books on the today's market. Why? –Because if you knew how to train correctly, you would get immediate, satisfying results and would not spend a small fortune on shady supplements and equipment as functional as the looks of a '57 Chevy.

The Commies were not motivated by vitamin sales. They wanted one thing: athletic supremacy. If a method did not work –it was discarded, no matter how attractive it sounded. A straightforward formula for strength has been distilled from the mix of sophisticated research, plain trial and error, and unscrupulous espionage. Many of the techniques recommended in the book originate in countries other than the former Soviet Union, including the US.

Unfazed by laughable considerations of which brand of the leg curl machine is best (they are all worthless). Unadorned by the emotional appeal to your mating instinct. Russian strength training secrets are finally available to an average American who wants to get strong and hard. Without blow - ing 'evergreens', as Russians call the ever-so-stable US dollars. Without liv - ing in the gym. Without delayed gratification.

Pavel "the Evil Russian" Tsatsouline,
August 1999, Minnesota, USA

Dedication

KT. OZR. Malta. Always.

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WIRED FOR POWER: SUPERSTRENGTH WITHOUT BULK

Paul Anderson. 'The Wonder of Nature'. In 1956 strength experts were convinced that the records set by this three hundred-fifty pound mastodon had announced the end of weightlifting history. Yet at the 1996 Olympics in Atlanta Bulgarian defector Naim Suleimanoglu snatched more weight than legendary 'Big Andy'... at one hundred thirty two pounds soaking wet.

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Function precedes structure.

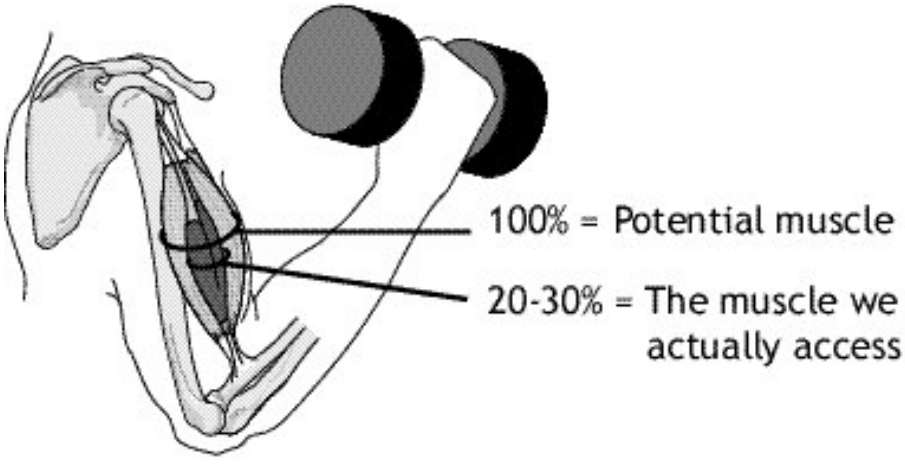
-Wolff's Law
▲

Don't judge a book by its cover. Don't judge a man's strength by the size of his biceps. Things are often not what they appear to be. When it is said that a muscle's strength is proportional to its cross-section, that statement must be qualified: everything else being equal. 'Everything else' is largely the level of activation of the muscles by the nervous system, or ***neurological efficiency.*** It is estimated that an average person can contract only 20-30% of his muscles when trying his hardest. Even a top lifter uses no more that 50% of his impressive muscles!

Your muscles are ***already*** capable of lifting a car. They just do not know it yet.

To appreciate your true strength potential, ponder the fact that when a person is electrocuted—by lightning, or the Fed—his muscles tear, his tendons rip off their attachments, even bones break... For the first—and last—time in the death row inmate's or golfer's life his muscles were fully activated by electricity.

Although we do not know yet how to completely overcome the ***strength deficit*** (which is good—you would rip yourself apart!), modern training methods can dramatically improve your muscle activation—and your strength with it. ***Power to the People!*** will teach you how to install the top of the line 'muscle software' into your nervous system and improve your strength and muscle tone. Without putting on an ounce of weight if that is your wish.



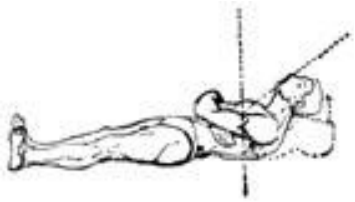
"It is important to note that most of the... factors underlying strength production are functional rather structural," point out top Russian strength expert Prof. Yuri Verkhoshansky and his South African counterpart Dr. Mel Siff. "Those determined by efficiency of the nervous system are of fundamental concern to the development of strength, since the muscular 'motors' are operated by synchronized electrical impulses supplied to the muscles by the nerves. Current preoccupation with the use of anabolic steroids to produce physical bulk thus may be seen to be misplaced, unless bodybuilding bulk is the sole objective. The development of specialized training regimes to enhance nervous system conditioning would be scientifically and morally more advisable..."

In the 1980s hardcore New York powerlifter Dr. Ken Leistner watched the explosion of bodybuilding and predicted the decline of effective strength training. He was right. Proliferation of the strength = size mentality lead to two unfortunate developments.

First, athletes started equating strength training with bodybuilding. The result was 'Hollywood muscle'—all show and no go. Although the new breed of US weightlifters were unquestionably buff, they, unlike their predecessors, could not hold a candle to the Eastern Europeans when it came to hoisting iron.

Second, women shy away from effective strength training in fear of getting bulky. They are content being weak because they do not know that they can get stronger without developing the bod of a Jesse Ventura. Ladies resort to pathetic high rep programs that do nothing to improve their muscle tone or strength. Indeed, bodybuilding is the worst thing that ever happened to strength training!

If you compare strength training to car racing, conventional bulking up is an unimaginative increase of the engine size. The approach described in ***Power to the People!*** is radically different. I shall teach you futuristic techniques which will enable you to squeeze more horsepower out of a given size engine. Ladies and athletes from sports where the bodyweight must be kept down, like wrestling and gymnastics, will enjoy a high level of strength without upgrading their clothes' size, and bodybuilders will finally be able to walk the talk with their newly functional muscles.



TENSION! WHAT FORCE IS MADE OF.

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If you know a converted bodybuilder who powerlifts, he almost always lifts well under what he appears to be able to do. Why? He has trained only muscle, not the central nervous system.

—Louie Simmons, powerlifting coach extraordinaire

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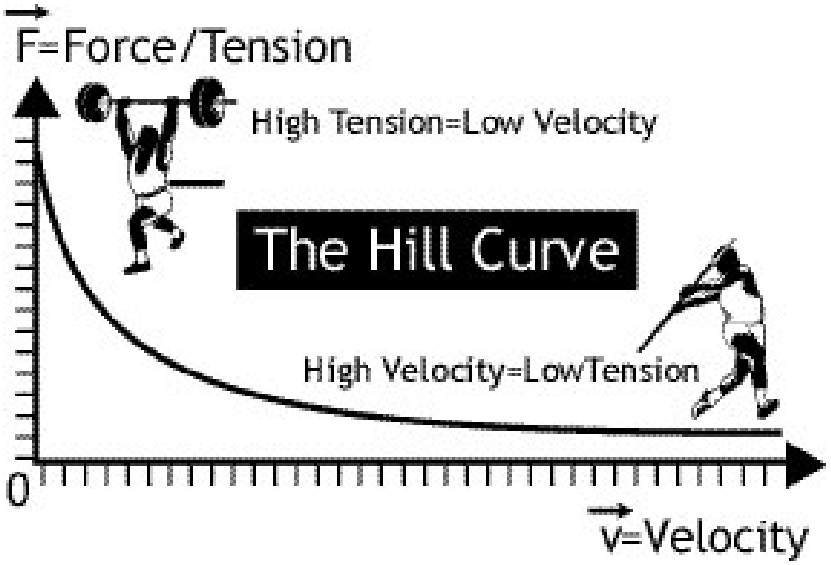
Curl a pencil or your pink Barbie barbell, whichever is heavier. Yeah, I know, the most intense activity you have done since high school is power mousing on your computer. Now curl your vacuum cleaner. Wow! Watch that biceps pop out! Why do your 'pipes' stand out in prominent relief when you are lifting something heavy?—Because tension is the mechanism by which your muscles generate force. Your car's engine blows up a mix of gasoline and air to push its pistons; *Red October's* nuclear reactor boils water and uses the steam to spin a turbine; your muscles tense up.

Tension = Force. The tenser your muscles are, the more strength you display. It is that simple. Watch how the wiry muscles of a kickboxer stand out in sharp relief when a powerful kick makes its impact or how a gymnast's compact deltoids appear rock hard and almost inanimate as he executes a crucifix on the rings.

Force and tension are essentially the same thing. That is why neurological, or 'bulk free', strength training can be summed up as **acquiring the skill to generate more tension.** "Skill is perhaps the most important element in strength," agrees strength researcher from California Prof. Thomas D. Fahey. To acquire that skill—and the super power that comes with it, not to mention the traffic-stopping muscle definition—you must maximize muscular tension in your training. High tension training involves:



High tension training has five key conditions:

1) slow exercise performance;
2) maximizing muscular tension, or 'flexing', regardless of the weight used;
3) employing heavy, 85-95% of one's maximum, weights at least some of the time;
4) minimizing fatigue;
5) taking advantage of various neurological phenomena.

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Karatekas have performed special exercises called *sanchin* which involve maximal dynamic tension of the muscles for centuries.
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1) Slow exercise performance

Lifting and lowering your iron slowly is a necessity commanded by your physiology. In the 1920s a scientist named Hill figured out that the force/tension rapidly drops off as the velocity increases:

Muscles cannot give all they have got when they contract fast for various mechanical and neurological reasons. That is why athletes from 'fast' sports have to be content with just a fraction of the strength they are capable of. When you pitch a baseball, you just do not get to push against it long enough to show some real muscle.

Athletes from nearly static sports—powerlifters, arm-wrestlers, and, for a part of their routine, gymnasts—move very slowly and get the luxury of maximally exerting themselves. Watch an arm-wrestling tournament if you get a chance. Two callused hands get locked in a standoff reminiscent of the Cold War. Neither side gives an inch. The velocity is zero and the twenty something muscles of the forearms are outlined like the muscles of a stiff cadaver with its skin removed. No wonder these slow pokes possess spectacular strength and muscle tone, which no other athletes can touch!

2) Maximizing muscular tension, or 'flexing', regardless of the weight used

Tensing your muscles as if you were handling a world record weight, even if you are lifting your grandma's broomstick, teaches you to maximize muscular tension. That, as you recall, is what makes you very strong. Such practice, in part, explains the feats of strength performed by martial arts masters: breaking bricks, absorbing powerful strikes, etc. Karatekas have performed special exercises called *sanchin* which involve maximal dynamic tension of the muscles for centuries.

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Modern neuroscience offers us a host of very simple techniques that make an immediate positive impact on your strength performance.

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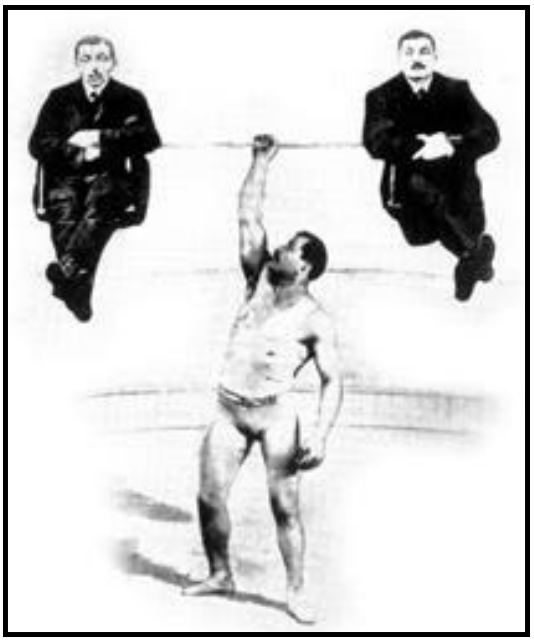
3) Employing heavy, 85-95% of one's maximum, weights at least some of the time

Then why, you might ask, should I lift heavy weights if I can just pretend with a broomstick or no weight at all, a la the late Charles Atlas?

Three reasons. First, your spine, joints, and tendons must get accustomed to the pressure of 'real' resistance. When a person who has done nothing but dynamic tension exercises attempts to lift a heavy weight, various sensors throughout his body scream to the spinal cord to shut down theoperation because they perceive the load as dangerous. When your muscles shake and then collapse under a barbell that is too heavy, it is the dirty work of these ***mechanoreceptors,*** the governors of strength. Martial arts masters understood it and complimented their dynamic tension drills with striking hard surfaces and breaking various objects to accustom their bodies to pressure.

And second, most people need the feel of live resistance to get skillful at generating a high degree of muscular tension. Australian exercise physiologists observed that "... the contraction is in fact caused by an electro-chemical signal which the muscle receives IN RESPONSE TO the load..." If you ask a comrade who has not been around iron to contract his internal oblique, for instance, he would not have a clue how to do it, even if you give him an anatomy atlas. Have him perform a Full Contact Twist from my *Beyond Crunches: Hard Science. Hard Abs.* book, and the properly aligned resistance will teach him what to do.

And third is something geeks call the Henneman's size principle. It states that, generally, the heavier is the load you are manhandling, the greater is the muscular recruitment, or tension. In your strength quest there is no way around hoisting some heavy iron at least occasionally.



The mighty Arthur Saxon who performed this stunt regularly when with the circus. The weight of his two brothers shown here was well over 300 pounds. He had no problem bent-pressing them overhead with one arm daily. The 'bent press' is an extreme version of the side press described later in the book. (Photo from Earle Liederman)

4) Minimizing fatigue

High values of fatigue and tension are mutually exclusive. When your muscles, mind, and cardio-respiratory system are tired, you cannot produce much force. Try a heavy bench press after a set of pushups or a five mile run and see what happens! An effective neurological strength program minimizes different types of fatigue by reducing the number of repetitions, increasing the rest periods between the sets, keeping your workout short, and similar measures.

5) Taking advantage of various neurological phenomena

It is an old maxim that in any endeavor the mind holds more potential than any physical transformation. Just watch a wiry old karate master chop a pile of bricks in half, a feat that would send a young bodybuilder to the emergency room. Modern neuroscience offers us a host of very simple techniques that make an immediate positive impact on your strength performance.

All of the above will be explained in detail further in the book. For now, remember that strength is your ability to generate force/tension. **Learn how to tense your muscles harder—and you will get stronger and harder without adding bulk.** Guaranteed.

TRAINING TO FAILURE-OR TO SUCCESS?

When it comes to building muscle and might, the gym wisdom is quick to sum it up as the attempt to do another rep when all the reps are done and lift another five pounds when all the pounds are lifted. Sounds cute and macho, like a teenage rock station. It also has as much semblance to reality a that same station's trash morning talk--show.

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Success begets success and failure begets failure.

—Dr. Fred 'Squat' Hatfield
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From Eugene Sandow to Yuri Vlasov, the strongest men and women in the world have never trained to failure! You will not even have to take off your shoes and show your toes to count the exceptions; your fingers will suffice. Cut the 'do or die' rhetoric take a long hard look at yourself, and tell me what are your odds of becoming another exception? If 'training to failure and beyond' is so hot, how come your bench has been stuck at 185 pounds since Arnold's first movie?

Old school lifters maxed or went to failure VERY infrequently. Quoting Earle Liederman in his 1925 classic ***Secrets of Strength,*** a strong man "never extended himself unless it was absolutely necessary. Once in awhile he would cut loose. It might be against a particularly strong competitor, or just with the desire to see whether he could improve his record." The top power dogs of today follow the same time tested strategy. Ed Coan squats 875x3 and calls it a day although he knows that he could have fived that weight. Heavy training not to failure sure worked for Coan who has set nearly eighty world records.

To understand how a man can squat 1,000 pounds without training to his limit, you have to understand the concept of intensity. It is generally agreed that intensity is the single most important factor in strength training. Arthur Jones, the Nautilus guru, defined it as 'the percentage of the momentary ability', or what you have done compared to what you could have done. For instance, if you curled 100x10 and that was your true limit, you performed with 100% intensity. If you only did 100x5, your intensity would rate a lowly 50%.

According to the 'high intensity training' advocates, or 'HIT Jedis' as they would become known in the ***Star Wars*** era, the amount of weight you are using is secondary, but you must go to total failure to get stronger. And if you do not, you are wasting your time. According to these characters, Vlasov's and Coan's method could not possibly work. Jimmy Stewart's character in ***Harvey*** must have been a HIT spokesman: "I wrestled with reality for thirty five years and I am happy to state that I finally won over it."

It is almost the XXI century and world class athletes and housewives alike should have no patience for unscientific touchy-feely training practices! Enter the only scientific definition of weight training intensity: the percentage of your 1RM, or the heaviest weight you can lift once. In Ed Coan's example his 875x3 squat set rates

87.5% intensity because his max is 1,000 pounds. If the powerlifting champion ate the wrong kind of mushroom and tried the Nautilus workout, he would squat something like 660x12RM. 'RM' stands for 'rep max', or the heaviest weight one can lift for a given number of reps. In this example Coan's intensity would be only 66%, regardless of the amount of suffering and the fact that he pushed to failure.

The Russian definition of intensity reflects the hard, cold, and knurled reality of the iron game. Research on both sides of what used to be the Iron Curtain clearly points to muscular tension, or weight, rather than fatigue, or reps, as the key that unlocks the strength puzzle (e.g., Roman, 1962; Goldberg et al., 1975; Atha, 1981)! In other words, you must push your limits of weight/tension, and not reps/exhaustion if you want to get stronger. It works. New England powerlifter Kirk Karwoski heeded Coan's wisdom and started racking his squats a rep short of collapse. The result was a 1,003 pound squat and muscular development of a T-rex. If you think that only sissies hang up their belts before total muscle failure, I suggest that you volunteer your opinion to temperamental three hundred pound 'Captain Kirk' and see how long you live.

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Muscle failure is more than unnecessary—it is counter-productive!
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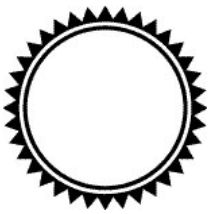

Even if you have no desire to set powerlifting records or outgrow your clothes, does not it make sense to use the most effective strength training method available? Especially since it is a lot less miserable than the 'train for pain' alternative?

Muscle failure is more than unnecessary—it is counterproductive! Neuroscientists have known for half a century that if you stimulate a neural pathway, say the bench press groove, and the outcome is positive, future benching will be easier, thanks to the so-called ***Hebbian rule***. The groove has been 'greased'. Next time the same amount of mental effort will result in a heavier bench. This is training to success!

The opposite is also true. If your body fails to perform your brain's command, the groove will get 'rusty'. You are pushing as hard as usual, but the muscles contract weaker then before! To paraphrase powerlifting champ Dr. Terry Todd, if you are training to failure, you are training to fail. HIT Jedis, the Force is clearly not with you.

The most intelligent way to develop strength is to lift much heavier weights than most weekend warriors play with but to terminate your sets before your muscles fail. Doing a triple with a weight that you could have done five reps with is a lot safer and more effective that an all-out set of ten. May the Force be with you!

DON'T WATER DOWN YOUR STRENGTH WITH REPS AND FATIGUE!

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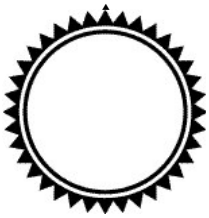
If after your exercise, your bath and your rub-down, you feel fit to battle for a kingdom, then your schedule is right.

—Earle Liederman, Secrets of Strength, 1925



Arthur Saxon's "theory was that light exercises were only tiring and made him no stronger," *The Strong Men of Old* book by Bob Hoffman explains the training methods of a famous lifter of the turn of the century. "...He would do each stunt only a few times and alternate with brief periods of rest so as to prevent himself from tiring. As a result... his rugged and sinewy physique reflected his great strength, strength the like of which the world has never seen since."

Yes, fatigue and strength/tension are mutually exclusive! Metabolic waste products like lactic acid hamper further powerful contractions. Cardiovascular insufficiency forces you to prematurely terminate your set. Mental fatigue from doing too many reps or sets prevents you from generating required intensity. The 'communication lines' between your brain and your muscles get overworked and no longer conduct your orders effectively.

Here is how you can minimize various types of fatigue and get the most out of your strength training:

1) limit the repetitions to five and fewer;
2) increase the rest intervals between sets to a duration of three to five minutes;
3) limit the number of sets to two;
4) pause and relax between reps;
5) do not practice a lift more than five times a week.

** unless you are trying to build muscle, a point I will elaborate on later*

1) Limit the repetitions to no more than five

"This tension [from reps] is lower than that developed when a maximal or a circa-maximal weight is lifted once and different in nature as well," stated top Soviet strength expert Robert Roman in the early sixties, when Russians weightlifters showed the world who ruled once and for all. "Besides, as the result of fatigue, the last reps of a set are performed against a decreased excitation of the nervous system. This impedes the formation of the complex conditioned reflex loops needed for further strength improvement."

Performing more than six reps per set hinders strength development! insists Arkady Vorobyev, another leading Russian sports scientist and a former world champion weightlifter. Limiting your reps to five is even better. Many of the world's strongest and hardest bodies have been molded with five and fewer rep sets. "When I began training," recalls powerlifting great Mike Bridges, "I did many repetitions and sets without too much success. When I stopped working on the reps, I began to increase in strength rapidly. I believe you can cut unnecessary reps and sets, and discover an ability to recover much faster. And, you will make bigger gains."

2) Increase the rest intervals between sets to a duration of three to fiveminutes

Health clubs try to talk you into spending as little as thirty seconds between your sets 'to increase intensity and improve your cardiovascular conditioning'. In reality, they want to get you out faster so they can recruit more members and make more money. Soviet exercise physiologist Leonid Matveyev who does not own health spa chain stock recommends three to five minute breaks between sets if one is training the nervous system rather than building muscle.

3) Limit the number of sets

Even if you keep your reps down and rest for a long time between sets, cumulative fatigue eventually sets in. Muscle growth will be stimulated, which is not everyone's objective. That is why the 'strength and tone only' *Power to the People!* workout is limited to only two sets per exercise. One set with the main weight, and one with a 10% lighter barbell. This format is not writ in stone; it just works for most comrades.

▼
If you freak at the thought of putting some weight on your joints, expect your joints to remain weak.
▲

4) Pause and relax between reps

It is a standard practice in North America to avoid the locked out position where the joints are supporting the weight. The idea is not to give the muscle any rest and, supposedly, 'save the joints'.

Arthur Jones, the creator of Nautilus, proposed exhausting the muscle as quickly as possible. While it is indeed helpful in building mass, as you will see later in the book, racing the fatigue is counterproductive when steel cable strength and muscle tone are the only objectives.

Pausing and relaxing—as much as safety allows—for a second or so between your reps will not only make you less miserable, but will enable you to generate higher values of muscular tension. As for the bit of advice about not locking out your joints, it is all hogwash. Your joints were meant to lock and support load. In fact, if you do not subject them to stress, you will never be really strong!

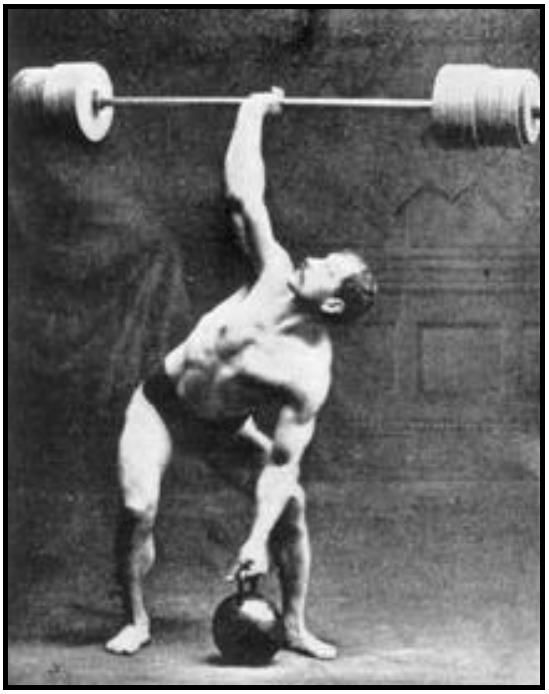
It was discovered in the mid-eighties that your knees, elbows, etc. have special mechanoreceptors, or sensors, which respond to loading. If you freak at the thought of putting some weight on your joints, expect your joints to remain weak. Whenever you attempt a heavy lift, the mechanoreceptors will stop your muscles from contracting by sending panic signals to your spinal cord. Old timers understood this well and built what they called 'ligament strength' with various heavy support feats. John Grimek, a legend of American weightlifting and bodybuilding, used to support up to 1,000 pounds overhead! And lived until around ninety years old to tell about it.

5) Do not practice a lift more than five times a week.

Forget the myth that 'it takes a muscle forty eight to ninety six hours to recover and get stronger'! It does only if your training is not well thought through. "The general idea in planning strength training sessions is to have the athlete do as much work as possible while being as fresh as possible", revealed former consultant to Soviet Olympic teams Prof. Vladimir Zatsiorsky after he jump shipped to the US. Elite Russian and Bulgarian weightlifters have up to twenty-eight sessions a week. "I'm a weightlifter," said world champion Ivan Chakarov from Bulgaria in an interview, "I train six or seven days a week, eight hours a day. I work for the government. When I can't produce, I lose my job."

▼ A German study performed in the early sixties discovered that taking more than a day off between strength training sessions reduced their effectiveness by a whopping 50%! ▲

And if you train like Chakarov, you will lose yours! Most adults who have more than their hair to worry about would do well emulating the power schedule of wiry farmer Bob Peoples whose deadlift record was untouchable for decades by men of any size, although Bob himself did not even weigh a buck eighty! "The number of times per week varied," wrote Peoples in *Developing Physical Strength,* his old fashioned manual which offered a lot more sound advice than most modern books. "More often I trained on average of four to five times a week, but have trained on Monday, Wednesday, and Friday, or every other day. I have also made good progress on one or two days per week. However, I did not follow a one or two day per week pattern very often."



The mighty Arthur Saxon performing his official world's record lift of 448 pounds in the two hand anyhow. (Photo from Earle Liederman)

Peoples' schedule is the ultimate in flexibility. Do your concentrated ***Power to the People!*** Workout—twenty minutes at the gym at the most!—Monday through Friday, and whenever your life is in a crunch, cut back. You can also take an extra day off from one or both lifts if you do not feel recovered for whatever reason. Just do not use this as an excuse to fall into a regular pattern of once or twice a week training. A German study performed in the early sixties discovered that taking more than a day off between strength training sessions reduced their effectiveness by a whopping 50%! I will elaborate on the scientific reasons for such unorthodox training frequency in a future book. For now, the blind faith of a good Communist will do. Remember, the Party is always right!

MORE LOW REP ADVANTAGES

Wimps like squawking about the exaggerated 'dangers' of low repetition heavy training and love pitching a high rep Barbie and Ken workout as the 'safe alternative'.

▼
Don't try to confuse me with the facts!

—Phil Hartman's character,
News Radio
TV show
▲

Wrong. Heavy low rep training is the safest way to lift. No, I have not been hit on the head a few times too many in the Soviet military. I will give you at least three reasons why heavy training with up to five reps is much safer than lifting a light weight many times.

First, the stabilizing muscles are prematurely fatigued during high-rep sets—anything over five in my book. Take the squat (please!). Although your legs are doing the job of hoisting the load, your back muscles have to work full time to stabilize the spine in a proper alignment. Your quads, glutes and hammies get to contract and relax like pistons and thus pump fresh blood through themselves. Your lower back, on the other hand, stays locked from the first to the last rep and will unavoidably die first. Once your back gives out—you are toast! One strength training authority who crusades for fifteen to fifty rep squats and deadlifts as a 'safer' form of training has a list of injuries worthy of a Purple Heart: torn knee menisci, multiple pec tears, rotator cuff tears, an arm fracture…

Edward Aston was a famous British middle-weight lifter who bent-pressed over 300 pounds, one hand overhead. (Photo from Earle Liederman)

Contrary to what the public thinks, "Most serious injuries occur during… fatigued states, and from moving out of position, and not during maximum (1RM) attempts," as top US strength experts, Drs. Stone and O'Bryant, like to point out. Powerlifters have a saying that 'five is the most reps God intended for a powerlifter to do'. Not because, as one smart aleck said, they cannot count higher than five. Because with the monster loads they are handling they have a very narrow margin for error and are forced to do everything they can to maximize safety. Dr. Joseph Horrigan who has treated many sports injuries in the Los Angeles area observed that bodybuilders—who generally train to failure—suffer from a lot more pec tears than powerlifters, although the latter bench a lot heavier.

If you take the hint and do no more than five reps, the involved muscles get fatigued at about the same rate. When the set takes only fifteen to twenty seconds to complete, you are forced to rack the weight for reasons other than compromised circulation. In the example of the squat your back and other stabilizing muscles will not bail out on you just when you needed them most.

The second reason for the superior safety of low rep heavy training is concentration. When you do something five versus twenty five times it is a lot easier to keep your mind on the task at hand. Besides, heavy weights command high respect while light ones do not.

▼
When you do something five versus twenty five times it is a lot easier to keep your mind on the task at hand.
▲

Third, lifting heavy weights allows you to develop awesome strength without training to failure. I have explained this point in the last chapter. You must agree that taking a weight that you could lift six times—the 'six rep max', or 6RM—and lifting it only five times is a lot safer than cranking out ten reps with a 10RM load!

A better quality of life delivered by low rep weight training is nothing to sniff at either. "I do three sets of ten to twenty reps on all of my exercises," a martial artist asked me once in a magazine, "and I get so sore and tired, that I have no energy left for my martial arts practice!" No wonder. It is well documented in the former Soviet Union by Roman and other scientists that repetitions in excess of five, and especially ten, make one a lot more sore and systemically fatigued than three to five rep sets.

Heavy training, if not overdone, even energizes you! Low rep heavy work, for example three sets of three reps at ninety percent of the athlete's maximum (3x3@90%1RM), is often employed by Russian coaches to produce a tonic effect on their athletes' nervous systems. You can see why the old time strongman said that after a good workout he felt 'ready to battle for a kingdom'!

RIGOR MORTIS, OR WHY HIGH REPS FAILED TO TONE YOU UP

You have tried high reps. You went for the 'burn'. It did not work. Why do you insist on doing the same thing and expect a different outcome?

The 'burn' you feel from high reps is from lactic acid buildup and does absolutely nothing for toning up your muscles. Pick up a copy of *The Guinness Book of World Records* and look up the picture of 'Captain America' who holds the world record in the number of consecutive sit-ups—in the ballpark of 25,000! This dude must have 'felt the burn' more than anyone else on this planet and he does not even have a six-pack to show for it, even at his low level of body fat.

▼
You like burn? Light a match.

—Fred Hatfield, Ph.D., Powerlifting World Record Holder
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The reason you feel hard during and after the 'burn' is the same reason a corpse is stiff. Your muscle fibers are like mouse traps—they go off by themselves, but need energy to be reset to contract again. A dead body is out of ATP, the energy compound that relaxes the muscles. A 'stiff's' muscles are permanently contracted. A high rep workout exhausts ATP in your muscle and leads to a temporary hardness very similar to the more permanent rigor mortis! The only way to make such 'tone' last is by killing yourself.

Then what is 'real' muscle tone and how do you get it? Flex your biceps the way kids do when they show off. Wow, the little ball is just rippling under the skin! If you just could walk around flexed like this... you would also develop a taste for canary yellow striped tights and tank tops three sizes too small for you and become a bodybuilder!

If you do not feel like walking around all day feeling and looking constipated, you could just train your nervous system to keep your muscles half flexed when you are relaxed. After all, this is what **muscle tone is—residual tension in a relaxed muscle!** The kind of tension that comes from neurological activity, and not energy exhaustion.

Increased muscle tone is not a physical transformation of your muscle. It is the result of the nervous system being more alert. It keeps the muscles partially contracted all the time so you are more ready for wrestling bears, crushing rocks in a labor camp in Siberia, and doing other useful things for the glory of the Party and the People. When a Russian paratrooper is braced for a kick in the gut from his drill sergeant, he has got the tone!

Strength = tension = tone. It is that simple. Provided you gain strength learning to generate tension, rather than by building muscle, generally the stronger you are, the harder you will be! Strength and tone training is the same thing.

"Why am I having trouble getting 'the buns of steel'?" wonder millions of ladies. Because the glutes have tremendous strength and leverage. When you see a power-lifter squat or deadlift bar-bending weight, the glutes carry the brunt of that multi-hundred pound load! When you do butt squeezes, 'fire hydrants', or similar silly moves popular in 'muscle sculpting' classes, you do not even come close to tapping the force/tension potential of your body's strongest muscles. You'd better get on a first name basis with heavy deads if you are after a hard butt!

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You'd better get on a first name basis with heavy deads if you are after a hard butt!
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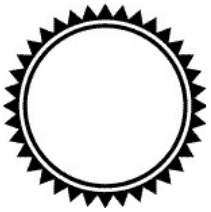

"Why can't I define my triceps to save my life?" wonder men and women alike. An obscure study done in the early sixties discovered that although the triceps is a 'three-headed' muscle, its medial head performs the brunt of the work. The other two heads, the long and the lateral, kick in only when the resistance is very high. According to Dr. Thomas McLaughlin, a biomechanics researcher and a nationally ranked powerlifter, even some powerlifters do not approach the weights needed to recruit the two lazy triceps heads in their training! The most visible part of your triceps is the lateral head on the outside of your arm. It is one of the 'bum' pair and it will remain forever flat and saggy if you keep lifting Ken and Barbie weights!

You want to be ripped? Train heavy! "Then why are bodybuilders more 'cut' than powerlifters?" you might ask. They train with lighter weights than power-lifters, yet they look more defined. Are we missing something?

No. The public stereotype of a weightlifter or powerlifter is that of a three hundred pounder with a beer gut. The lifters in the unlimited class indeed fit this image because they benefit from the extra weight, even fat. It is much easier to come out of a squat if you have a huge belly and thick calves to bounce off! So these men's rock hard muscles are buried under slabs of fat.

Lighter lifters, on the other hand, tend to be very lean to make the most efficient use of the weight allowed by their class. Check out the anatomy chart physique of 198 pound Russian Olympic weightlifting legend David Rigert, the hard body of a petite 123 pound Mary Jeffrey who bench pressed a whopping world record of 275 pounds, or the sinews of John Inzer, a 165 pound Texan with a 780 pound world record deadlift. Ironically, these athletes' looks are the side effect, rather than the result, of their training.

When it comes to bodybuilders, also keep in mind that there is a big difference between looking good without trying, and getting photographed when you are almost bursting from flexing. And don't forget the shave, the oil, the pump, plus expert lighting and photography which could make Woody Allen look almost like a man. And how about amphetamines, thyroid hormones, diuretics, and the kitchen sink bodybuilders take to get 'cut'?

"But I don't want to bulk up!"

No, the call to heavy metal is not a Communist plot to get all Americans bulky and create a food shortage. Surprise: lifting heavy weights is will not necessarily build big muscles!

When comrades see three hundred pound men five feet tall and four feet wide in strongman contests they confuse the cause and the effect. These guys naturally gravitated towards the iron game because of the leverage advantage they got in the genetic sweepstakes. They lift heavy because they are built that way, not the other way around. Quoting Mark Twain, "Get your facts first, and then you can distort them as much as you please."

▼

...occasional heavy lifting tends rather to harden the muscle than to rapidly increase its size, protracted effort at lighter but good-sized weights doing the latter to better advantage.

—*William Blaikie,* How to Get Strong and How to Stay So, *1879*

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What does make your biceps grow? According to the ***energetic theory,*** a muscle cell possesses a limited amount of energy, or ATP, at any given moment. It is spent two ways: protein synthesis and mechanical work. Normally, a muscle is in an anabolic/catabolic balance. It resembles a pool with the 'in' and 'out' pipes of the same size. Whatever proteins are degraded by your lame daily activities get replaced. However, when a muscle is forced to contract against great resistance AND perform a large amount of work, it uses most of its available ATP supply. Consequently, less energy can be spent on protein re-synthesis. The catabolic processes start prevailing and the muscle mass is reduced.

In the aftermath of this destruction the muscle cell gets a chance to channel its energy to anabolism. It just goes nuts and synthesizes more protein than you had before the workout! Just in case, for the rainy day.

Now, have you figured out yet how to lift heavy without bulking up? Class, anyone? Anyone? I feel like the social science teacher from *Ferris Bueller's Day Off.* If you have not seen this great American classic, I highly recommend it. The teacher is explaining the revenue curve to a class of spaced out drooling kids. Class, anyone knows what 'voodoo economics' is? Or how to get stronger and harder without getting bigger? **Train heavy, but keep the volume, or the total number of reps per workout, low.** The idea is to minimize the amount of 'torn down' muscle—and the reconstruction that follows.

How low is 'low'? The exact number will vary from victim to victim (a kind name for the people I have strength trained), but generally if you keep your reps to ten and under you are in the clear. There are exceptions, of course. Some alien life forms grow like weeds from one heavy set of five reps. If you are one of them, you probably ran away with the circus years ago and will not be reading this book. For the rest of you, Commies, two sets of five is what Lenin ordered for wiry strength.

Russian, Eugen Sandow—the ultimate body proportions for all time. Sandow displayed perfect curves no matter how he stood. Even when relaxed, Sandow's abdominal wall was a six pack modern gym rats would envy, (Photo from Earle Liederman)

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To get strong and hard without getting big—train heavy but do not do many sets. Thus spake Comrade Stalin.

▲

"No Bulk Here, Comrades!"

If you have been inactive in your former life, any activity, heavy lifting, or even light typing, is likely to add a little muscle to your carcass initially. Do not think of it as new muscle gain, but rather getting back the meat you were supposed to have in the first place. Kind of like after being in a cast or bedridden for years. Most likely your measurements will not increase, while your weight will go up a few pounds. The packing density of your muscles' contractile proteins has increased, the first thing to happen when 'real' muscle growth takes place. Be happy: a denser muscle is a harder muscle.

Keep your sessions brief and heavy if skinny power is what you are after. My friend Dr. Judd Biasiotto squatted an out-of-this-world 605 pounds at an efficient 132 pounds of bodyweight when he trained with a couple of heavy 'triples', as sets of three reps are known in the iron world. Years later Judd became a highly successful master bodybuilder when he upped his volume and started squatting 325x30. His thighs are huge compared to the 'pair of pliers in shorts' that set four world records, yet he is training with half the weight he used to lift. So much for the mainstream bulking up theories.

To get strong and hard without getting big–train heavy but do not do many sets. Thus spake Comrade Stalin.


POWER.
TO THE PEOPLE!

"MACHINES ARE THE WUSSES' WAY OUT."

I owe the title of this chapter to Mauro Di Pasquale, M.D., North American Powerlifting Champion and one of the most knowledgeable comrades on strength training on this continent.

Machine training is often hyped as the thing to do for beginners because free weights are harder to control. "Contrary to common belief," state Prof. Verkhoshansky and Dr. Siff, *"the novice must be taught from a base of mobility to progress to stability,* just as an infant learns to stand by first moving, staggering and exploring the environment."

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... check out the weight facility. If there are more machines than weights and you're not in the snack room, think twice before entering.

—Louie Simmons, powerlifting coach extraordinaire

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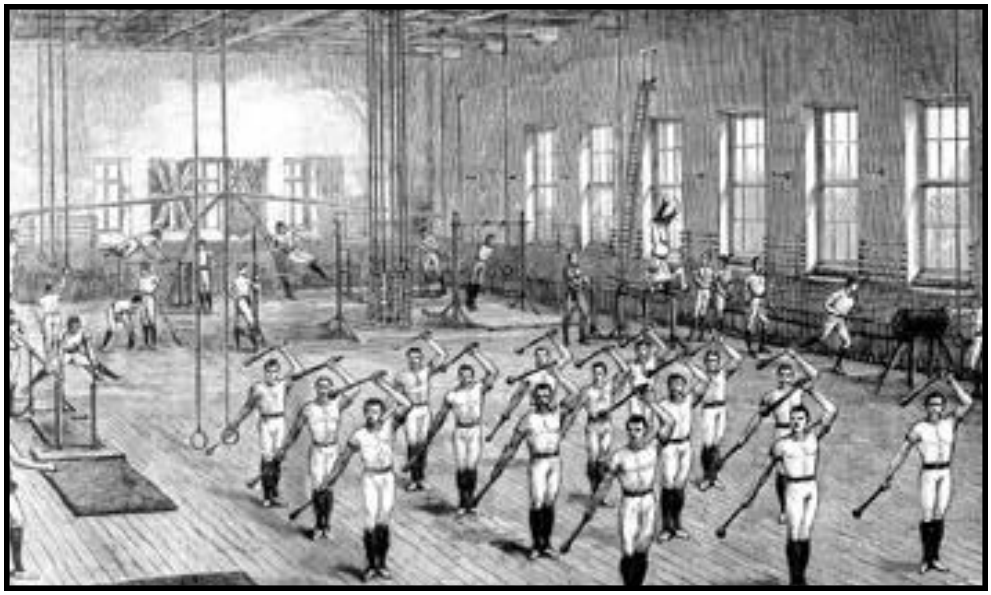

It is best to learn to use free weights when you have the least strength to hurt yourself. Would you rather 'stagger and explore' with fifty or three hundred fifty pounds in your hands? I rest my case.

Paul Chek, an innovative corrective and sports performance exercise specialist from La Jolla, California, proposed an interesting experiment to illustrate this point. Do a set of dumbell bench presses to limit. Without a break continue bench pressing with a barbell loaded with the exactly the same weight as the two dumbbells you have just used. Once again, go to limit. Next, run over to the Smith machine—a type of an exercise machine with a real barbell in its tracks—loaded with the same weight. You will still be able to lift the weight you have failed with twice!

When you use dumbbells, you control the weight in 3-D. The barbell eliminates one degree of freedom: you cannot move your hands in or out on the bar until you let go of the weight. A machine restricts you to one plane of movement. Your stabilizing muscles get no workout because the machine is doing their job. When you get back to the real world where you have to control your weights, you will expose yourself to an injury in the planes of movement you have not strengthened. Besides, you will not be able to use most of your strength. Your nervous system will shove a brick under your gas pedal when it realizes that the stabilizing muscles are not up to the job. Using the strength built on an exercise machine is like shooting a cannon from a canoe!

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Your nervous system will shove a brick under your gas pedal when it realizes that the stabilizing muscles are not up to the job.
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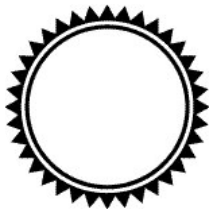

In addition to the acute injuries you are asking for if you try to test your machine-built strength in the field, you will be building up micro-trauma for future problems. "The more fixed the object, the more likely you are to develop a pattern overload," explains Paul Chek. "Training in a fixed pathway repetitively loads the same muscles, tendons, ligaments, and joints in the same pattern, encouraging micro-trauma which eventually leads to injury." Compound that risk with the difficulty of lining up your joints with the machine's axis. Machines were built for an 'average person'—and I am yet to meet one.

In the Soviet nation's single-minded drive to succeed in the Olympics, no effort or expense was spared to advance sports science. Yet the Russkies' training facilities look like a junk yard, with plenty of ugly barbells, intimidatingly big plates, and not much else. The evil ones know that free weights are the most natural, versatile, safest, effective, and efficient training tool. Do you?

"Machines are the wusses' way out!"

ISOLATION EXERCISES, FRANKENSTEIN'S CHOICE

Strength training expert Dr. Ken Leistner once observed that a body molded with a number of isolation exercises like leg extensions or triceps kickbacks looked like 'a collection of bodyparts'.

Even if you favor the Frankenstein look, you should avoid one-joint exercises. They are inefficient, they negatively affect your athletic performance, and make you more injury prone.

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In America convenience was a substitute for power, and comfort the substitute for status.

—Tom Clancy, Executive Orders

▲

Movements that involve more than one joint form a ***kinetic chain.*** It is a natural way for your body to perform. When you push your car out of a ditch you do not try to isolate your quads and limit the movement to your knee joint. No, your quads, hamstrings, glutes, and calves work as a team and many joints are involved: the ankles, the knees, and the hips.

Your nervous system develops coordination to manage that team of muscles. This inter-muscular coordination is one of the main factors determining how strong you are when you lift a barbell or move your refrigerator. "How can anyone expect to possess co-ordination in active work when his muscles have never worked together in groups?" asks incredulous Earle Liederman in his 1924 book ***Muscle Building***.

Deadlifts, presses, and other full body exercises have inter-muscular coordination very similar to that of the sports you play or the things you do in everyday life. That is why it said that these exercises develop 'functional strength'. Add a few pounds to your deadlift, and you will run faster, jump higher, and get that water softener bag out of the trunk of your car with less effort.

In contrast, one-joint drills develop useless strength. In a knee extension strength test conducted at the Ohio State University three world class squatters, including one world record holder, showed a very modest 180 pounds of force, while one mediocre powerlifter broke the Cybex machine! One-joint strength just does not carry over to reality.

Prof. Fahey concludes, "One-joint exercises, such as leg extensions and leg curls, develop movement patterns that will interfere with patterns you use in your sport. Such exercises lead to inappropriate muscle recruitment patterns that can impair movement and lead to injury."

When everything is said and done, muscle isolation is impossible with any meaningful load anyway, as you will learn in the next chapter. So why even bother trying?

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It's not daily increase but daily decrease—hack away the unessential!

—Bruce Lee

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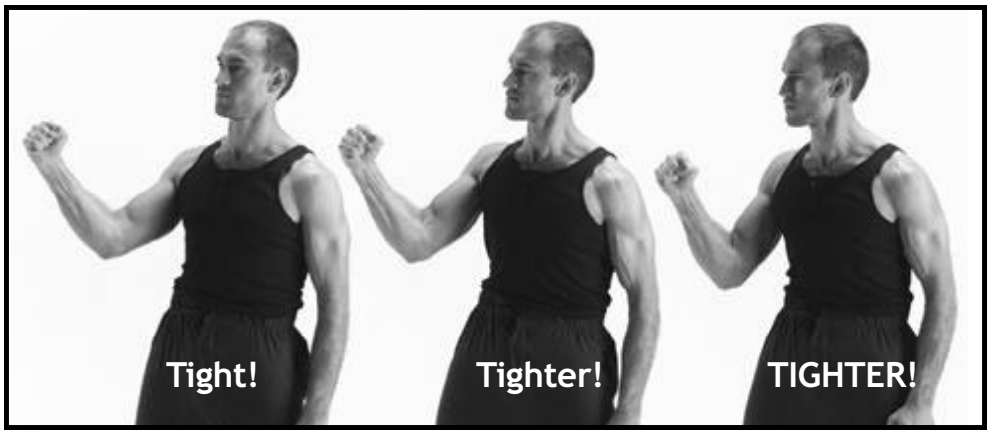


Tension—or weight—is the name of the game. The more you produce, the stronger and harder you will get! Make a tight fist. Where do you feel the tension? Your forearm and biceps, right? Even tighter! White knuckles! Do you feel your shoulder and even chest flexing too?

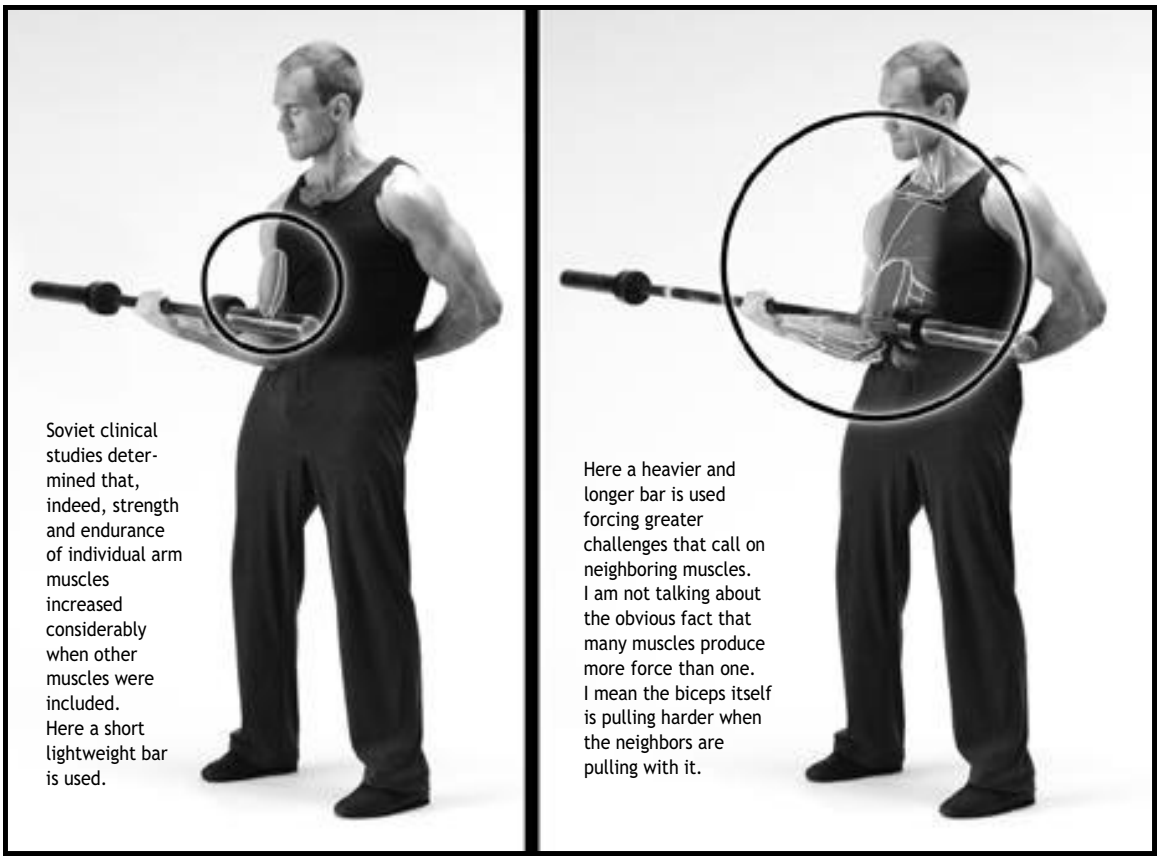
Like a stone dropped in the water sends ripples across the surface, tension spreads—irradiates—from the muscle directly responsible for the job at hand towards others.

Technically, only the finger flexor muscles in the forearm make a fist. In reality, when the demand for force increases, other muscles jump in on the action. Like a stone dropped in the water sends ripples across the surface, tension spreads—irradiates—from the muscle directly responsible for the job at hand towards others. The bigger the stone, the taller are the waves and the further they spread!

Russians have never been averse to applying solid foreign research to their training. Take the ***Sherrington Laws*** postulated by one of your countrymen named—surprise!—Sherrington decades ago. One of these 'lieuez', as Chief Inspector Clouseau would say, is the ***Law of Irradiation***. It states that a muscle working hard recruits the neighborhood muscles, and if they are already a part of the action, it amplifies their strength! Not by cheating, as some complement their barbell curls with a back swing, but by 'cheering'. The neural impulses emitted by the contracting muscle reach other muscles and 'turn them on' as electric current starts a motor.

Irradiation is one reason compound exercises like bench presses are more effective strength builders than isolation moves like triceps pushdowns. Soviet clinical studies determined that, indeed, strength and endurance of individual arm muscles increased considerably when other muscles were included. I am not talking about the obvious fact that many muscles produce more force than one (duh!). I mean the biceps itself is pulling harder when the neighbors are pulling with it. "...with muscles, as with everything else, "In union there is strength," as Earle Liederman put it.

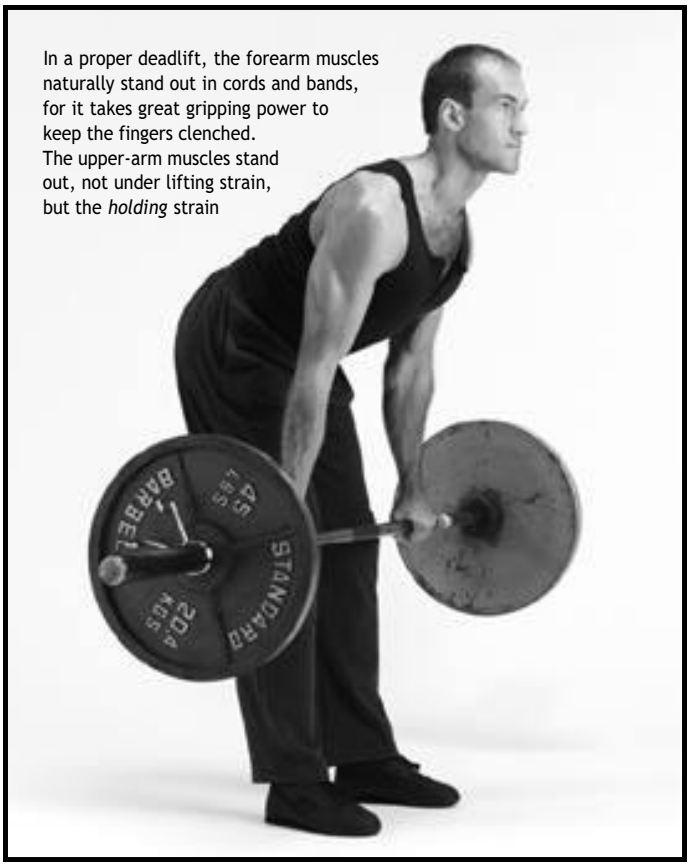
Thanks to irradiation, we can design a superior efficiency strength workout. If you



make a point of lifting respectable weights in exercises like the deadlift, which requires you to pick up a barbell off the floor until you stand erect and lends itself to huge weights, you will start a chain reaction which brings every muscle in your body into play!

"If you could see a photograph of an athlete lifting... in this manner," writes old time physical education director Earle Liederman about a deadlifter, "you would notice muscles sticking out all over him... The forearm muscles naturally stand out in cords and bands, for it takes great gripping power to keep the fingers clenched... The upper-arm muscles stand out, not under lifting strain, but the ***holding*** strain... The muscles along the full length of the spine also stand out prominently, not because they do much of the lifting, but because they have to keep the body upright. The muscles which stand out most prominently of all are the ones which are doing the actual lifting; namely, the thighs and shoulder-muscles."

Call me biased, but the deadlift is THE exercise of choice for anyone, from a



In a proper deadlift, the forearm muscles naturally stand out in cords and bands, for it takes great gripping power to keep the fingers clenched. The upper-arm muscles stand out, not under lifting strain, but the *holding* strain

computer geek to an Olympic athlete! It lends itself to tremendous weights, it teaches you some useful habits for everyday life, and does not require any equipment except a barbell which will not set you back more than $150. At least until you pull over three hundred pounds.

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Anyone can relate to bending over and picking up a weight. 'Dip, grip, and rip' is the most normal and common movement.
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Hardcore metal heads usually praise the squat as the numero uno exercise and 'the measure of a man' (even if you are a woman). I disagree. The squat is a very technical lift. A beginner needs a few months of instruction by a powerlifter before he can do a decent squat. 99% of the squats I have witnessed at health clubs, even by seasoned gym rats, were atrocious in form. Besides, you need reliable spotters and/or a safety rack unless you want to get squashed like a bug if you make a wrong move. The deadlift can simply be dropped which makes it a lot more user friendly. And the deadlift works a lot more muscles than the squat because you must hold on to the bar instead of letting it ride on your shoulders. Any way you look at it the deadlift wins hands down!

For the record, there is a reason why big guys are usually so partial to squats. Comrades who gravitate to serious iron games often have big muscles, short legs, and a long torso. These characteristics give them an advantage in the squat while making the deadlift very difficult. It is not uncommon for a 700 pound squatter to be able to pull but 550 pounds in the deadlift. Partly due to the leverage advantage in the squat and disadvantage in the deadlift, and partly because fancy knee wraps, belts, and canvas suits in powerlifting competitions give a great—100

pounds is not uncommon—boost to one's squat and not nearly as much to the deadlift. Big egos are fragile, therefore the squat in which these guys are good at becomes THE lift.

Let us get real. Anyone can relate to bending over and picking up a weight. 'Dip, grip, and rip' is the most normal and common movement. The squat is a man made game. End of story. Squat fans, please send your hate mail directly to the round file.

"The deadlift is the main exercise," states Igor Sukhotsky, M.Sc., who performs military oriented strength research, "It improves performance in all sports and develops primary power." Sukhotsky knows. This renaissance man used to be a nationally ranked weightlifter and today he competes in full contact karate at fifty something years of age.

While the squat has only been around for a few decades, the deadlift was practiced under different names since the days we stopped walking on all fours. Old timer Earle Liederman recalls his first encounter with this awesome exercise:

"Another man in that gym, who interested me, was an old gentleman who was one of the few amateurs who frequented the place. I did not know his exact age, but from things he said I judged that he was a boy in Civil War days, and must have become interested in exercise in the 1870's; a time at which there was a vogue for a device called a "health-lift". All he was interested in was lifting weights off the floor; and he had made a contraption on which he could load a 100-pound weight and at the top of the affair was a handle, or cross-bar, which reached up about twenty-eight inches. This man had the theory that if every day you thoroughly exercised your back muscles, you would keep your figure, your health, and your strength into advanced old age.

So every afternoon he would drop in and have a short session with his lifting-machine. He would pile on three or four hundred pounds, stand with straight legs, bend his body by arching his spine a trifle, and lift the weight by straightening his back. He would put on more weights and practice what professionals call the "hand-and-thigh lift" [a short range bent knee deadlift—P.T.]. He would keep his back straight and bend his legs at the knees, grasp the handle-bar, so that his knuckles would rest in front of the thigh; and lift the weight by straightening the legs and heaving up the shoulders. After two or three repetitions he would pile more weight, and it was customary to work up to 1,000 or 1,200 pounds [realize that it was a very short movement; the highest weight ever lifted off the floor is 925 pounds—P.T.] before he quit. On one occasion to settle an argument he lifted 1,500 pounds dead weight in the "hand-and-thigh style". I cannot tell you how

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This man had the theory that if every day you thoroughly exercised your back muscles, you would keep your figure, your health, and your strength into advanced old age.
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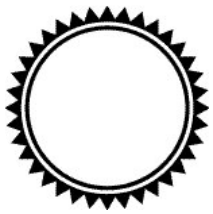
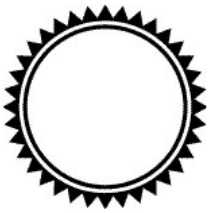


long he had exercised in that way, but he must have been at it forty years when I knew him. And as he rarely missed a day, there was a very good reason for his profound faith in his own method of keeping himself strong and healthy."

"One of the factors that makes the deadlift very effective, very hard, and very uncomfortable," writes New York powerlifter and chiropractor Dr. Ken Leistner, "is the fact that it works "a lot" of muscles. One should not think of the deadlift in terms of being a "low back exercise". While the musculature of the low back is certainly involved, that very narrow perspective limits the usefulness and effectiveness of deadlifting consistently. The lift should be initiated by the hips and thighs and finished with the assistance of the low back muscles. Stabilizing the weight and controlling one's body position also calls upon the traps, scapulae retractors, lats, forearms, and hamstrings." Hugh Cassidy, powerlifting world champion of the early seventies, also believed that the deadlift was the best abdominal exercise, bar none. It may make little sense to you right now, but once you work up to an appreciable poundage, you will easily relate to that statement.

▼ Generally, the higher the weight, the greater the tension. ▲



There is just one gap the deadlift leaves in your strength: your pressing prowess. "Notwithstanding his ability to lift enormous weights off the ground he could not lift big dumb-bells over head," concludes Liederman in his story of the amazing old gentleman. The pressing musculature just does ,not get enough specific work from deadlifts. Bob Peoples was a farmer from Tennessee who deadlifted 725 pounds, from the floor to lockout—the world record for any weight class before the Great War—at a dainty 178 pounds of bodyweight. Yet Peoples could barely bench press his bodyweight.

So we shall add one pressing movement. I prefer the old fashioned side press over the bench and similar exercises. Consider this the cherry on top of the deadlift to give you complete muscular development. Just remember, as in sales, where 80% of your business comes from 20% of your customers the Pareto Law applies—the press is just a cherry on the top of the deadlift sundae!

Whether you decide to start your workout with the deadlift or the press, is up to you. Many trainers recommend always starting with the exercise which involves more muscle groups, the deadlift in our case. Forget it. For a number of reasons, which I have no desire to dwell on, this generalization does not work as often as it does. Do your own thing. Press-deadlift, or deadlift-press, the Party will let you make one tactical decision on your own.

If you have concerns that muscular imbalance might result with such an abbreviated program, see a chiropractor or a physical therapist—not a personal fitness trainer!—to address them. For most folks it will not be a issue, and for those for whom it is, mindlessly adding more exercises will not fix it. Even the medical community is not clear what the perfect 'balance' is. For example, the widely accepted 3:2 quad to hamstring strength ratio, is pretty much a guess. "…who are we to state what it should be," quips outspoken physiologist Ken Hutchins, "Get both functions as strong as possible and then Mother Nature will decided their proportionality, not us." And, by the way, the deadlift is the best hamstring drill, bar none!

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"With muscles, as with everything else, "In union there is strength"

—Earle Liederman.
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Generally, the higher the weight, the greater the tension. Therefore, **employing exercises which enable us to handle the most amount of weight and then pushing the envelope of resistance in these exercises instead of pushing the reps up will give us the biggest return on our time investment into strength training.** Speaking from experience, the deadlift/press program develops hard and functionally strong bodies! Irradiation with heavy weights and 'big' exercises is the superior and efficient alternative to the Lego method of a million isolation moves.

EMPHASIZE YOUR PROBLEM AREAS WITHOUT ADDING EXERCISES

"But how can I shape my body with only two exercises?"

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If the only tool at your disposal is a hammer, treat everything like a nail.

—Russian saying

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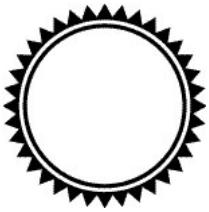

Glad you asked. You cannot reshape an individual muscle, even with twenty-two exercises, because of the way your muscles are hooked up to your brain. Each motor nerve, the 'wire' which transmits the commands from your brain to your muscles, controls its own group of muscle fibers called a motor unit. The constituent fibers of a motor unit are evenly spread out throughout the muscle, rather than being concentrated in its 'peak', 'sweep', 'lower', or 'upper' part. Even if you manage to recruit a different motor unit with a different exercise, its fibers will still spin the entire length of the muscle. When a muscle stretches or contracts, it does so throughout its entire length, like a rubber band. The training effect is consistent from one end of the muscle to the other, no matter which end you attach the load to.

Then why do you get sore on one side of a muscle, rather than the other? Probably from tendon inflammation on the loaded end. And burning or tightness during the set is the result of locally restricted circulation. None of the above will reshape your muscles.

A muscle will look different if you build it up, but along the lines of the original shape, like a balloon that you fill up with air. That is why some guy you know built a huge biceps which seems to cross his elbow into his forearm while yours just rolls up your sleeve in a tough little knot whenever you flex it. Your buddy was born with short tendons and long muscle bellies. You, on the other hand, have short muscles and long tendons. When he builds up his bis, the space above the elbow fills up nicely. You cannot do that since your biceps does not extend this far: there is nothing to build in the gap between the muscle and elbow but a ropy tendon.

Naturally, you can go on a selective bodybuilding program. Build up some muscles—not parts of muscles!—more than others, and your body shape will change. If you build the brachialis muscle which lies underneath your biceps, you might get a passable illusion of a bigger 'lower biceps'. I will address these advanced considerations in a future book. For now they would distract you from your mission: the deadlift and the press. It does not do to worry about car polish if your engine and transmission are not up to snuff. I will, however, teach you a very efficient approach to emphasizing various muscle groups which you want to strengthen, tone up, or build up in the context of the Big Two, the deadlift and the press.

Tweak the basic drill to shift a lion's share of the load to your problem area. For instance, switching to a wide, or 'sumo' stance in your deadlifts will give special attention to your glutes. You are specializing on your weakness while still working the rest of your muscles adequately with the same exercise!

In spite of your apparent 'imbalances', chances are that you do not need a specialization program. Build up to respectable poundage on your basic lifts—and the lazy muscles will be forced to do their part!

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It does not do to worry about car polish if your engine and transmission are not up to snuff.

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